



Kaupuni

Ho‘omalūō



Energy Policy

To enable native Hawaiians and the broader community working together to lead Hawai‘i’s effort to achieve energy self-sufficiency and sustainability

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DEPARTMENT OF HAWAIIAN HOME LANDS



HO‘OMALUŌ ENERGY POLICY

To enable native Hawaiians and the broader community working together to lead Hawai‘i’s effort to achieve energy self-sufficiency and sustainability.

January 2009

OBJECTIVE 1

Mālama ‘āina:
Respect and protect our native home lands.

ACTIVITIES:

Develop a comprehensive strategic plan for the protection, restoration and preservation of DHHL’s forest lands. (An appropriate plan that incorporates the preservation of all law, tradition, and culture of Native Hawaiians that respects balance, harmony, and sustainability of the forest lands for future generations.)

Develop a comprehensive strategic plan for the protection, restoration and preservation of DHHL’s other lands—lands other than forest lands, lands for horse leasing and lands for general lease.

Identify properties in DHHL land inventory that have potential for carbon sequestration and determine if carbon sequestration is a viable use of DHHL Lands.

Evaluate each Regional Plan to determine if energy self-sufficiency and sustainability goals and objectives should be incorporated into the region. (The regions contained within the Regional Plans can serve as today’s “ahupua‘a” - the past Hawaiian land-management system of self-sufficiency for future generations.)

Develop, implement, and maintain plans to reduce DHHL’s carbon footprint (reduce greenhouse gas emissions).

OBJECTIVE 2

Ko‘o: Facilitate the use of diverse renewable energy resources.

ACTIVITIES:

Identify properties in DHHL’s land inventory that have potential for renewable energy projects.

Pursue the development of those lands that are identified as suitable for renewable energy projects. When priority should be given to entities that would provide “firm” renewable energy power such as geothermal-to-energy (run-of-river), geothermal, pump-storage hydropower, solar-thermal, and second priority to “intermittent” renewable energy power such as wind, solar-photovoltaic, and wave.

Discourage existing and future general leases and licenses of DHHL’s properties to design and build their facilities so that they are energy and resource efficient.

Seek partnerships for the development of renewable energy resources. In this connection, build relationships that could assist DHHL in non-energy related issues.

Evaluate DHHL’s available authorities/powers that could expedite renewable energy projects for the state of Hawai‘i.

Seek innovative processes to provide reliable electricity, by installing electric utilities (in a world where energy is an essential but very limited resource) to reduce Hawai‘i’s dependency on fossil fuels.

OBJECTIVE 3

Kūkulu pono: Design and build homes and communities that are energy efficient, self-sufficient and sustainable.

ACTIVITIES:

Promote, design, and build new affordable homes that are built as lifestyle and social impact using the “Hawaii BuiltGreen” and “ENERGY STAR” programs. (These programs ensure the designing and building of new energy and resource efficient homes in Hawai‘i.)

Strive to plan, design, and build new communities utilizing the “ahupua‘a” concept and the Green Communities program. (The Green Communities program’s criteria are designed to provide a cost effective approach and standard for creating healthy, affordable, and environmentally responsible homes and communities.)

Assist beneficiaries to utilize energy efficiency rebates, financial assistance, tax credits and other incentives offered by utility companies and federal, state and county governments.

Promote the benefits of hybrid electric vehicles to help reduce Hawai‘i’s dependence on fossil fuel costs. (10% of Hawai‘i’s imported fossil fuel is used for transportation that must be used efficiently or conserved.)

Assist beneficiaries to obtain mortgages under the “Energy Efficient Mortgage” program. (The program can help beneficiaries save money and reduce their loan qualifying income requirements.)

Seek partnerships with federal agencies like with the U.S. Department of Energy that provide access to current state-of-the-art technical advancements in energy.

Seek partnerships that provide grants and other financial aid and loans for the development of state-of-the-art net zero energy homes.

Join with electric utilities and the Public Benefits Administration as partners to advocate, communicate and educate the public on state-of-the-art energy initiatives.

Energy efficient homes require less energy and less water than do non-energy efficient homes. (Energy efficient homes can save up to 10% on energy bills and 10% on water bills.)

OBJECTIVE 4

Kōkua nō i nā kahu: Provide energy efficiency, self-sufficiency, and sustainability opportunities to existing homesteaders and their communities.

ACTIVITIES:

Identify effective energy efficiency and conservation retrofit applications and develop a plan to assist homesteaders with the retrofitting of their homes. (Retrofit applications may include solar hot water heating systems, low-voltage lighting systems, low-flow toilet and shower heads, photovoltaic systems, CFL bulbs, ENERGY STAR appliances, energy efficient windows, clothes line, ventilation techniques, and roof/lotic vents.)

Assist homestead communities to achieve potential energy self-sufficiency by identifying properties near existing homes and that could be suitable for community renewable energy projects that could also generate revenue for their respective regional plan projects.

Seek partnerships to assist homesteaders with retrofit applications and energy self-sufficiency projects.

Help homesteaders lower their monthly electricity and maintenance costs through loan on the purchase of energy power equipment as well as for their respective Regional Plan projects.

OBJECTIVE 5

Ho‘ona ‘auao: Prepare and equip beneficiaries to promote a green, energy efficient lifestyle in and around communities.

ACTIVITIES:

Seek partnerships that provide opportunities to learn how to live a self-sufficient and sustainable, green lifestyle.

Develop and implement resource efficiency programs for beneficiaries to reduce, reuse, and recycle resources. The resources include conservation and education materials, household items, yard waste, and other items which might be sent to landfills or incinerated.

Assist homestead communities to become more aware of their energy use and carbon footprint.

Ho‘omaluō

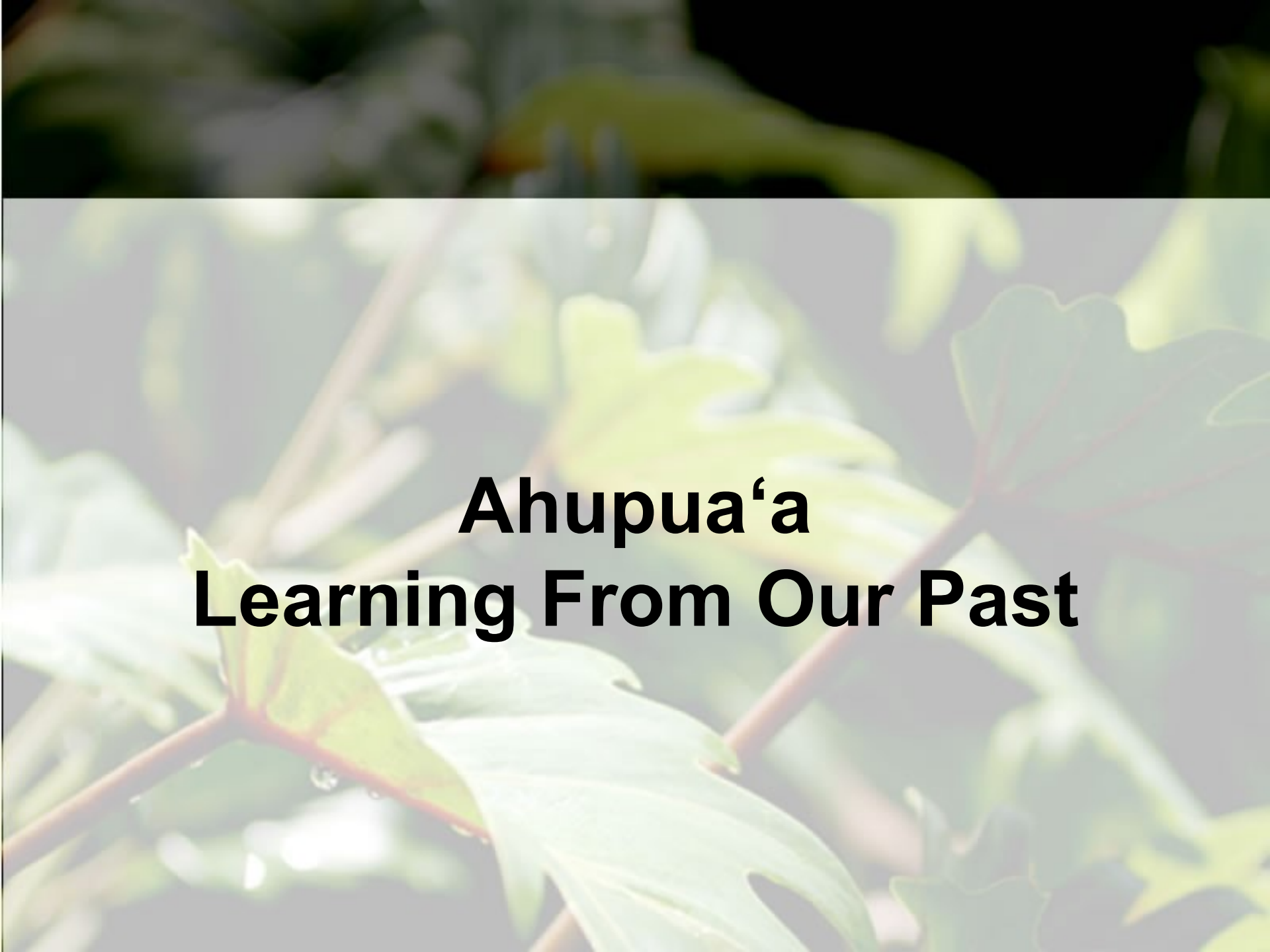
Objective 3

Kūkulu pono: Design and build homes and communities that are energy efficient, self-sufficient and sustainable

- **Encourage the building of new “green” homes and communities for homesteaders based on the ahupua‘a concept**

Kānehili



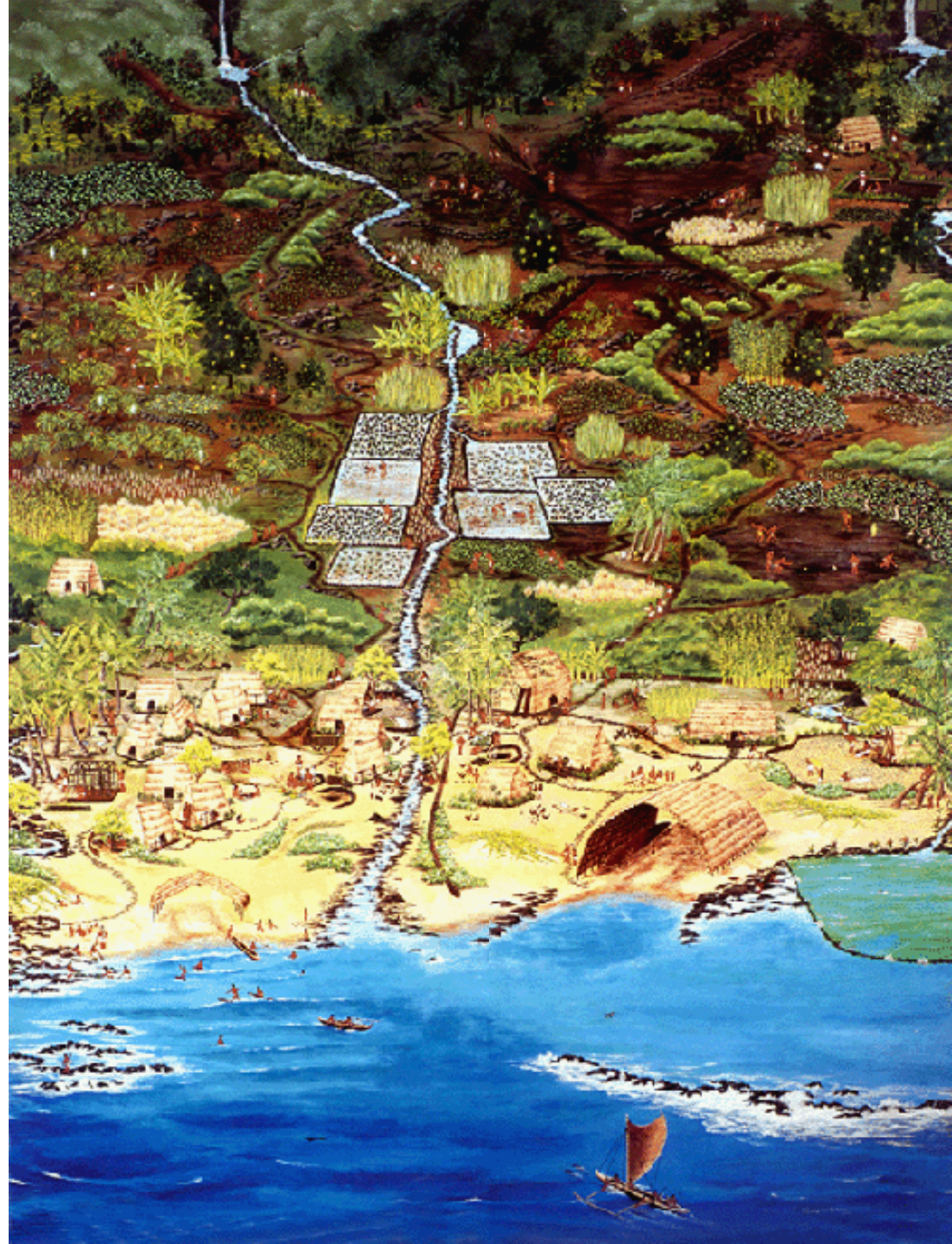


Ahupua'a Learning From Our Past

Ahupua'a

Hawaiian way of building healthy and sustainable communities

- Divisions of land from the mountains to the sea
- Three areas of importance: upland, plain and sea
- Together three areas contained range of products and resources needed for survival



The Modern Ahupua'a

- **Foster strong sense of place**
- **Lead in use of natural resources**
- **Promote economic development**
- **Reconnect to 'āina**



Kaupuni - Ke Kaiāulu Ho'owaiwai The Prospering Community

Vision

- **Community that produces its own food and energy with zero carbon emissions**
- **Creating a sustainable way of life blending tradition with technology**
- **Create a 21st century ahupua'a where we replenish what we use**
- **Share what is learned with other communities across the islands**

Project Partners



FUNDED BY THE AMERICAN RECOVERY
AND REINVESTMENT ACT



Hawaiian Electric Company
Maui Electric Company
Hawaii Electric Light Company



Target Income Group

- This subdivision is designed for those families that are 80% and below the Area Median Income for the island of O'ahu

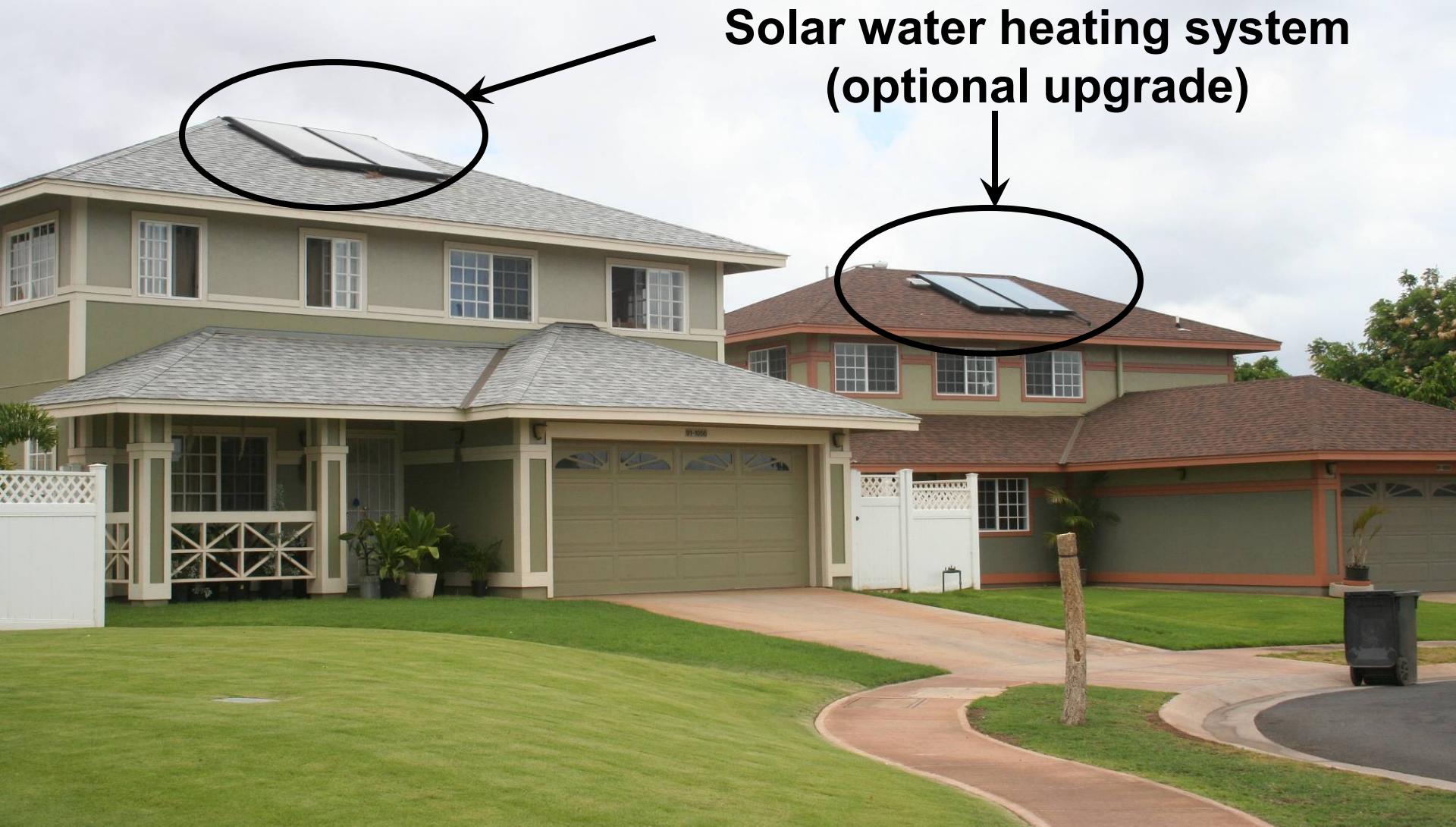
2009 Oahu HUD 80% Median Income Chart by Household Size

1 person	2 persons	3 persons	4 persons	5 persons	6 persons	7 persons	8 persons	9 persons	10 persons	11 persons
\$53,250	\$60,900	\$68,500	\$76,100	\$82,200	\$88,300	\$94,350	\$100,450	\$106,538	\$112,626	\$118,714

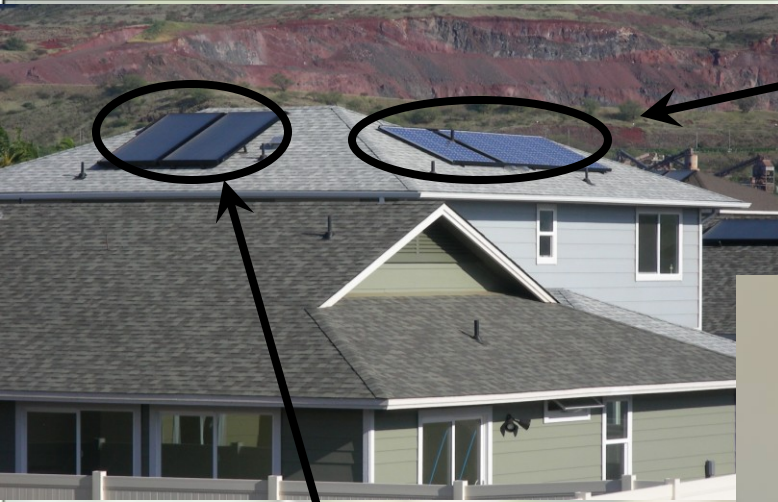
The background of the slide features a close-up photograph of green, lobed leaves, likely from a vine, with some water droplets visible. A solid dark horizontal band runs across the top portion of the image. The text "Project Information" is centered in a bold, black, sans-serif font.

Project Information

8 Years Ago: Kaupe'a, Kapolei



3 Years Ago: Kānehili, East Kapolei



**Photovoltaic
system (optional)**

**Solar water heating
system (standard)**



Hybrid insulation



**Energy Star
appliances**



**Compact
fluorescent
lighting system**



Today: Kaupuni, Wai'anae



Location



Site Plan

19 Lots
1 Community Resource Center





House Information

Model A -\$208,000
3 bedroom / 2 bath (1,919 sq ft)



Model B - \$265,000
4 bedroom / 2.5 bath (2,207 sq ft)



Leadership in Energy and Environmental Design (LEED)

- **Created by the U.S. Green Building Council as a rating system for green building**
- **Certification levels are as follows:**
 - **Certified**
 - **Silver**
 - **Gold**
 - **Platinum**

LEED Platinum

- **Kaupuni will be the first LEED Platinum single-family residential subdivision built for 80% AMI population in the country**



Energy-Efficient Home

Solatube Skylights

Natural light in interior spaces

Photo-Voltaic & Hot Water Solar Panels

Produce power and minimize electric bills

Fiber Board Siding (Recycled Material)

High SRI Roofing

Reflects and minimizes heat absorption through the roof

Pervious Concrete Driveway

Minimizes run-off by allowing rainwater to percolate through hard surfaces and be absorbed by the ground

High Performance Glazing

Reduces heat gain through windows

Light Colored Roof

Minimizes heat gain through roof

Insulated Roof

Minimizes heat gain through roof, and minimizes cooling costs

High Efficiency Appliances

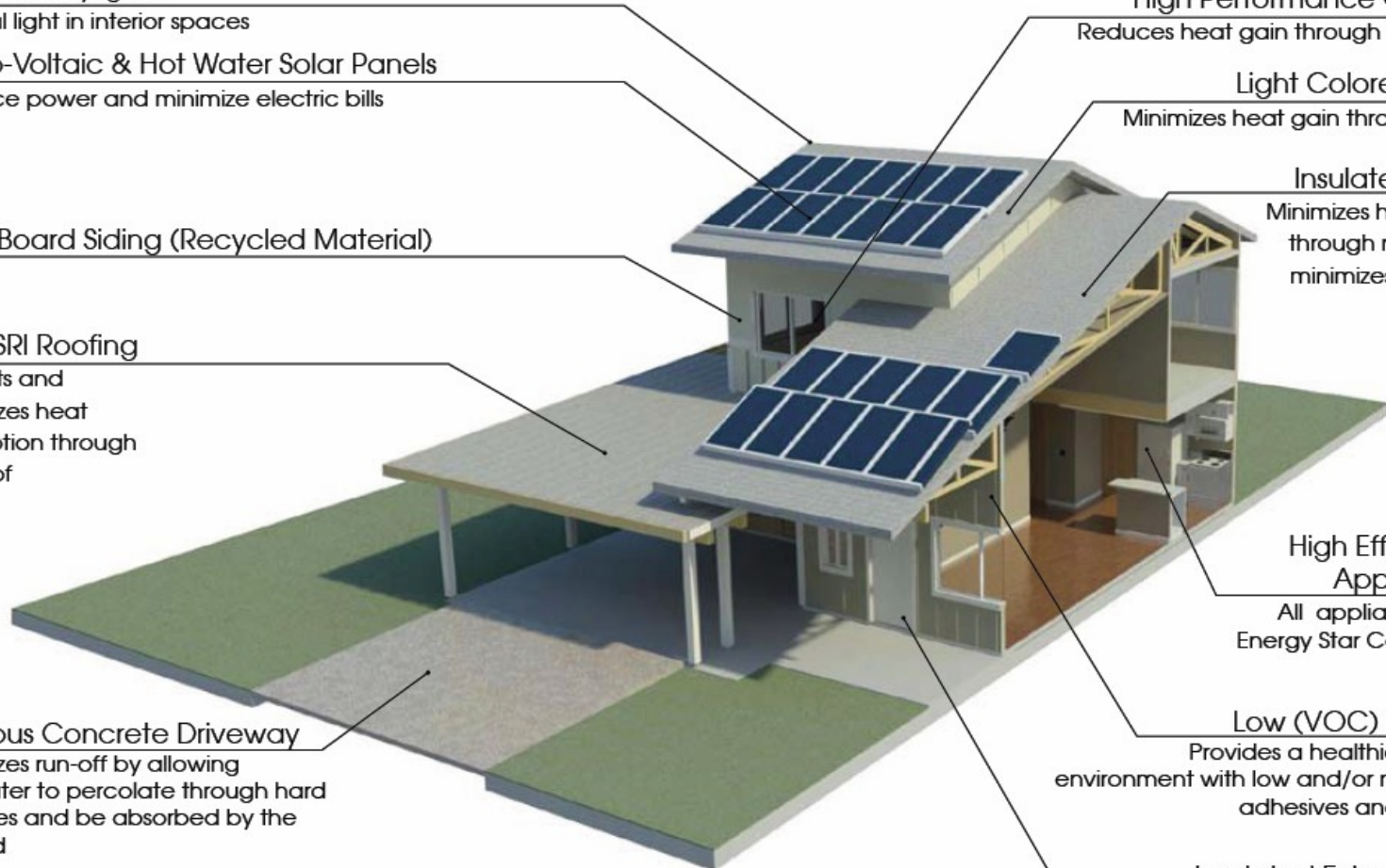
All appliances are Energy Star Compliant

Low (VOC) Finishes

Provides a healthier indoor environment with low and/or non-toxic adhesives and finishes

Insulated Exterior Wall

Reduces heat gain through exterior walls and minimizes cooling cost



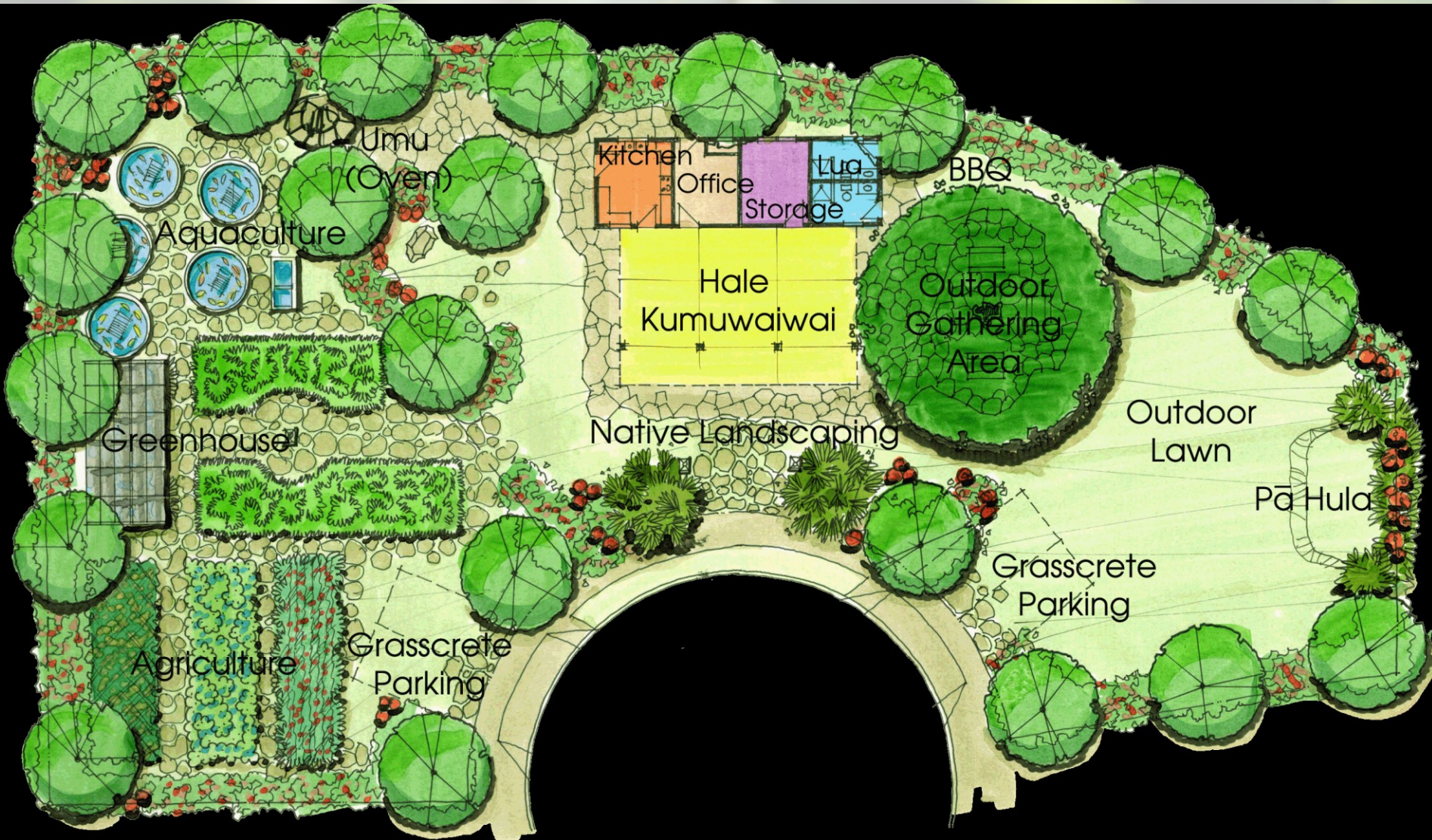
Hale Kumuwaiwai Community Resource Center



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Hale Kumuwaiwai Community Resource Center



Community Farming



Storytelling



Community Learning



Food Preparation

Hale Kumuwaiwai Community Resource Center

Aquaponics



Hydroponics



Aquaculture



Kaupuni Implemented May 2011



Kaupuni Implemented May 2011



Solatube Skylights

Low VOC Finishes

High Efficiency Appliances

High Performance Glazing

Light Colored / Insulated Roof

Photo-Voltaic & Hot Water Solar Panels

High SRI Roofing

Fiber Board Siding

Insulated Exterior Wall

Pervious Concrete Driveway



Success



Areas of Improvement



Areas of Improvement

- **Net Zero vs. Sustainability**
 - **Confusing ourselves with the Green terminology**
 - **“Green”**
 - **Net Zero**
 - **Carbon Footprint**
 - **Sustainable**
 - **Recycle / Reuse**
 - **LEED**
 - **Energy Star**
 - **Global Warming / Green House Gases**
 - **Etc. etc. etc.**

Areas of Improvement

- **Net Zero vs. Sustainability**
 - Confusion caused implementation of incomplete ideas.



Areas of Improvement

- **Net Zero vs. Sustainability**
 - Hawaiian sense of place



Areas of Improvement

- **Community Center maintenance**
 - Planning
 - Maintenance costs
 - Not fully used/engaged
 - Land area shrinkage
 - Lifestyle assumption



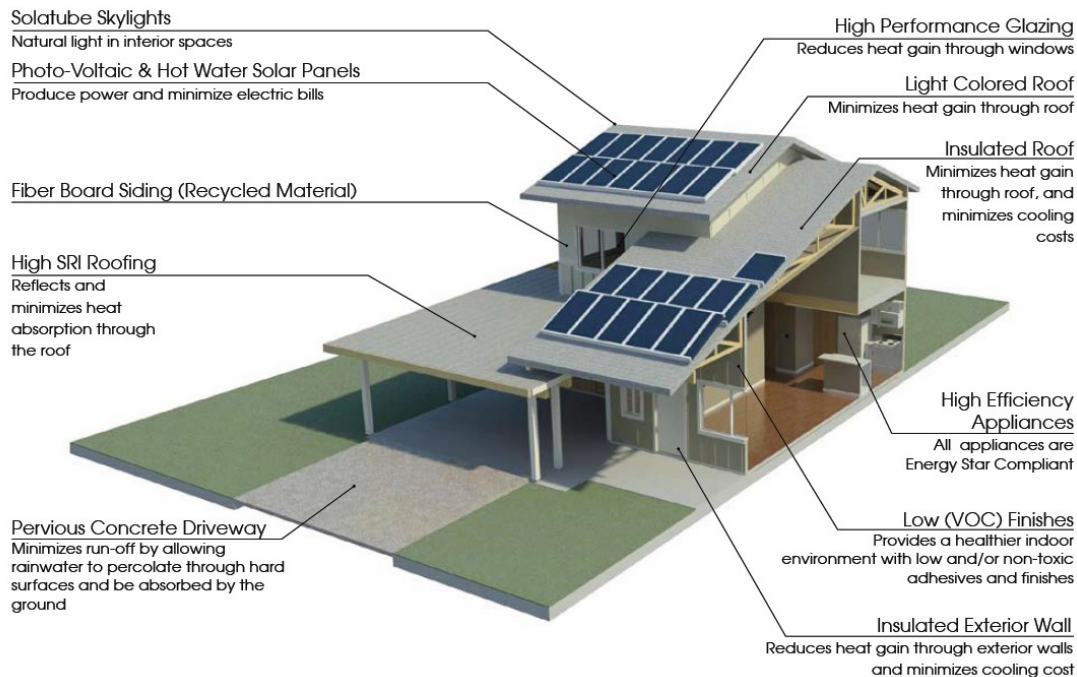
Areas of Improvement

- **Low-income vs. Green Living**
 - The “pull” was the house and not green living
 - Household priorities



Areas of Improvement

- **More technology = More maintenance**
 - **Even “no maintenance” requires maintenance.**



Areas of Improvement

- **Homeowner's Education**
 - Refrigerators
 - Use of the PV system
 - Renter's mentality



Areas of Improvement

- **Community leadership**
 - We focused on the house more than the community leadership
 - Dreaming how people would live their lives.



Success



Success





Mahalo!

www.dhhl.hawaii.gov